

### REMARKS

Claims 1-36, 38 and 48-51 are pending in this application. Claims 1-9, 11-15, 17-22, 24, 25, and 30-38 are rejected. Claims 37 and 39-47 have been canceled. New claims 48-52 are added herein.

#### The Restriction Requirement

Claims 39-47 are canceled herein pursuant to the restriction requirement.

#### The Objection to the Claims

Claims 9, 10, 25 and 30 are objected to for informalities set forth at page 3 of the Office Action. It is respectfully submitted that these informalities have been corrected by the amendments herein.

#### The Rejection Based Upon Prior Art

1. Claims 1-9 and 30-38 are rejected under 35 U.S.C. § 102(b) as being anticipated by Shan et al. WO 00/15551. Shan et al. is directed to inorganic oxides with mesoporosity and a process for preparing such oxides. Shan et al. discloses the preparation of mesoporous aluminum oxides.

Claim 1 is amended herein to recite that the process for the synthesis of the mesoporous aluminum oxide comprise two separate steps for combining with a solvent. In the first step, the organic aluminum source is combined with a *first* solvent to form a mixture. Then, *after* the

pore-forming agent is added to the mixture, a *second* solvent is added. The second solvent contains water and at least one alkanol. In a preferred embodiment, the first solvent is a mixture of isopropanol and ethanol (see, new claim 49), and the second solvent includes water, isopropanol and ethanol. (See, new claim 50). Support for this recitation may be found in the specification, for example, at page 7, line 19 to page 8, line 10 , and Example 1 at page 23, lines 1-10.

This feature is not disclosed or suggested by Shan et al. In Example 1 at page 13, Shan et al. discloses the addition of aluminum isopropoxide to an aqueous solution of TPAOH, tetrapropylammonium hydroxide. Then, the pore forming agent triethanol amine is added, followed by the addition of tetraethyl orthosilicate (TEOS). However, there is no subsequent addition of solvent prior to drying the material.

In Example 3, page 13, Shan et al. discloses providing a mixture of aluminum isopropoxide and isopropanol followed by addition of TEOS. Then a mixture of triethanolamine and water is added, followed by the addition hydroxide. As can be seen, there is no disclosure in Shan et al. of the addition of a *second* solvent containing *water and alkanol, after* the addition of the pore forming agent and after the mixture containing the pore forming agent is agitated.

Accordingly, it is respectfully submitted that claim 1 as amended, and all claims depending therefrom are allowable over the Shan et al. reference. Reconsideration and withdrawal of the rejection of these claims are respectfully requested.

Claim 10 has been deemed to contain allowable subject matter and is placed in independent form. It is respectfully submitted that claim 10 is allowable.

Independent claim 30 is amended herein to include the recitations of original claim 37 directed to the adsorption-desorption isotherm characteristics of the mesoporous aluminum oxide composition. See, e.g., Fig. 10 of the present application and Example 14, page 27 of the specification, particularly lines 15-17. Accordingly, claim 37 is canceled. It is respectfully submitted that Shan et al. neither discloses nor suggests a mesoporous aluminum oxide having the claimed adsorption-desorption isotherm characteristics as now recited in claim 30. Accordingly, claim 30 and all claims depending therefrom are submitted to be allowable over Shan et al. Reconsideration and withdrawal of the rejection of these claims are respectfully requested.

2. Claims 11-15, 17-22, 24, 25 and 30-38 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,027,706 ("Pinnavaia et al.") Pinnavaia et al. is directed to a porous aluminum oxide material prepared by a non-ionic surfactant assembly route.

Claim 11 is amended herein to further recite that the pore-forming agent employed in the process of the invention is a *non-surfactant* capable of hydrogen bonding *without forming miscelles*.

The prior art use of surfactants as templating agents is acknowledged. See, pages 2-4 of the present specification. However, as noted in the present specification, such methods are based on the self assembly of surfactants to produce micelles, and it is difficult to adjust the porosity of the resulting materials. Specification, page 4, lines 3-5.

In the present invention, small molecule organic chemicals are employed as the pore-forming agents *instead of* surfactants, and *no* micelles are formed in the mesopore templating process. Thus, the mesoporosity of the aluminum oxide can be easily and continuously adjusted. Moreover, it is possible to use inexpensive inorganic aluminum sources. See, specification, page 7, lines 13-18.

As can be seen, the Pinnavaia et al. reference employs an entirely different synthesis route and neither discloses nor suggests the process of the invention as now recited in claim 51.

Accordingly, claim 11 and all claims depending therefrom are submitted to be allowable.

Claims 30 to 38 are also submitted to be allowable over Pinnavaia et al. for the reasons indicated above.

#### The New Claims

New claims 48 to 50 depend directly or indirectly from claim 1 and further recite features of the first and second solvents. These claims are also submitted to be allowable.

New independent claim 51 is similar to original claim 11 but recites a “basic alkali metal compound” rather than “alkali”. Support for this recitation may be found in Applicants’ specification at page 11, line 21 wherein the basic alkali metal compound NaOH is recited.

Pinnavaia et al. neither discloses nor suggests the addition of an alkali metal compound to prepare the mesostructured alumina composition. Rather, Pinnavaia et al. mentions only ammonia, ammonium carbonate and urea to adjust the pH of the mixture. Pinnavaia et al., col. 7, lines 47-49. Claim 52 depends from claim 51 and further specifies that the alkali metal compound is NaOH

Accordingly, claims 51 and 52 are submitted to be allowable over Pinnavaia et al.  
Reconsideration and withdrawal of the rejection are respectfully requested.

#### Allowed Claims

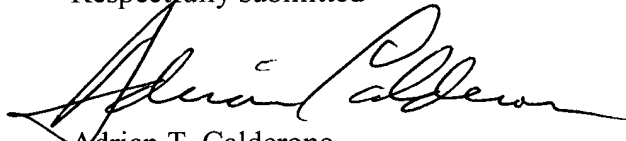
Claims 16 and 23 are deemed to be allowable and are placed in independent format by substantially incorporating the recitations of the base claim(s).

Claims 26 to 29 are allowed.

CONCLUSION

For at least the reasons stated above all of the pending claims are submitted to be in condition for allowance, the same being respectfully requested.

Respectfully submitted

A handwritten signature in black ink, appearing to read 'Adrian T. Calderone', with a stylized flourish at the end.

Adrian T. Calderone

Reg. No. 31,746

Attorney for Applicant(s)

DILWORTH & BARRESE, LLP  
333 Earle Ovington Blvd.  
Uniondale, NY 11553  
Tel: (516) 228-8484  
Fax: (516) 228-8516